

# THE EIGHTEENTH ANNUAL MEETING.

VOL. VI.

JANUARY, 1900.

No. 1.

## The Forester

### A MONTHLY MAGAZINE

devoted to the care and use of  
forests and forest trees and  
to related subjects.



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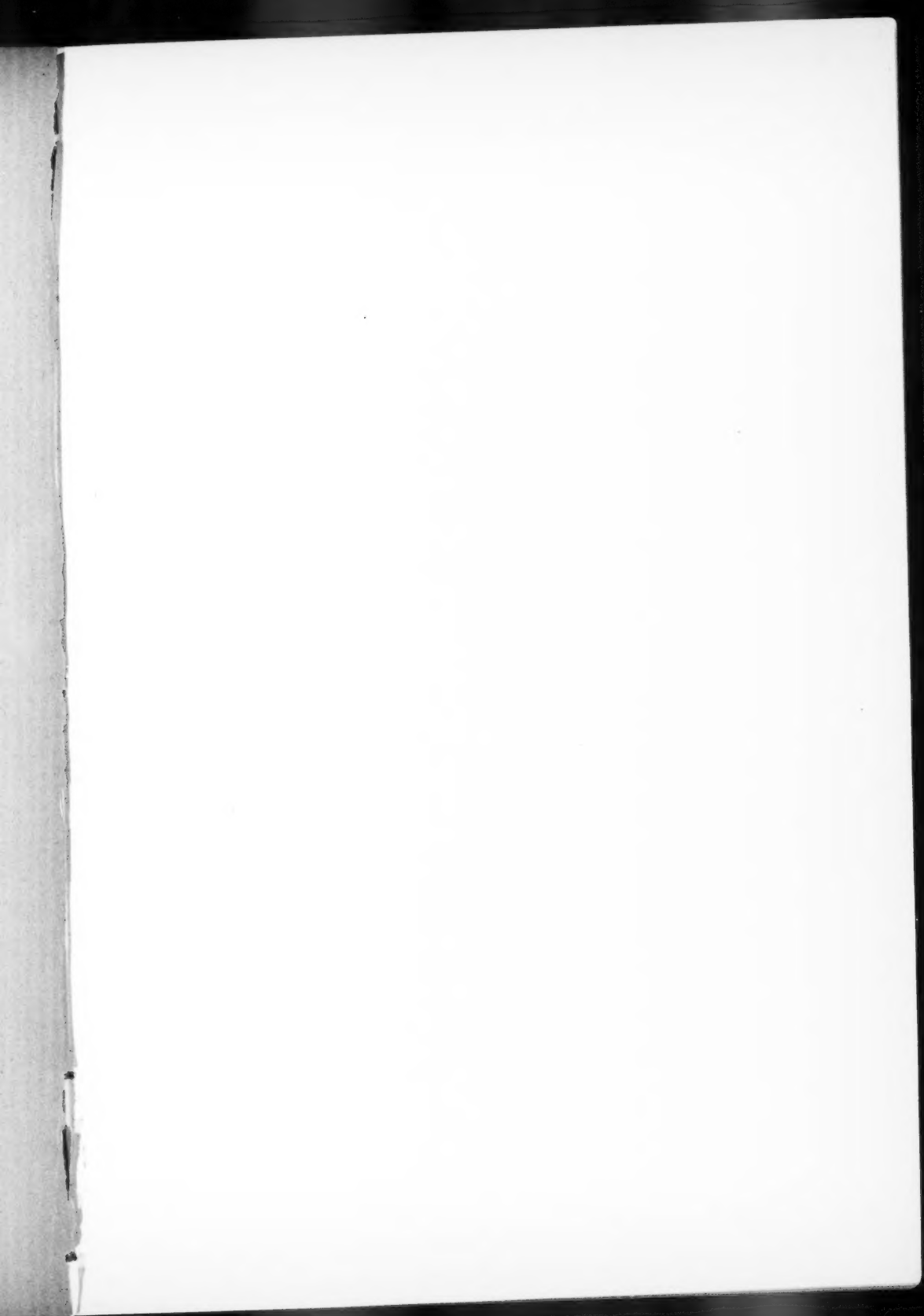
**EUCALYPTUS  
AS A SHADE TREE.**

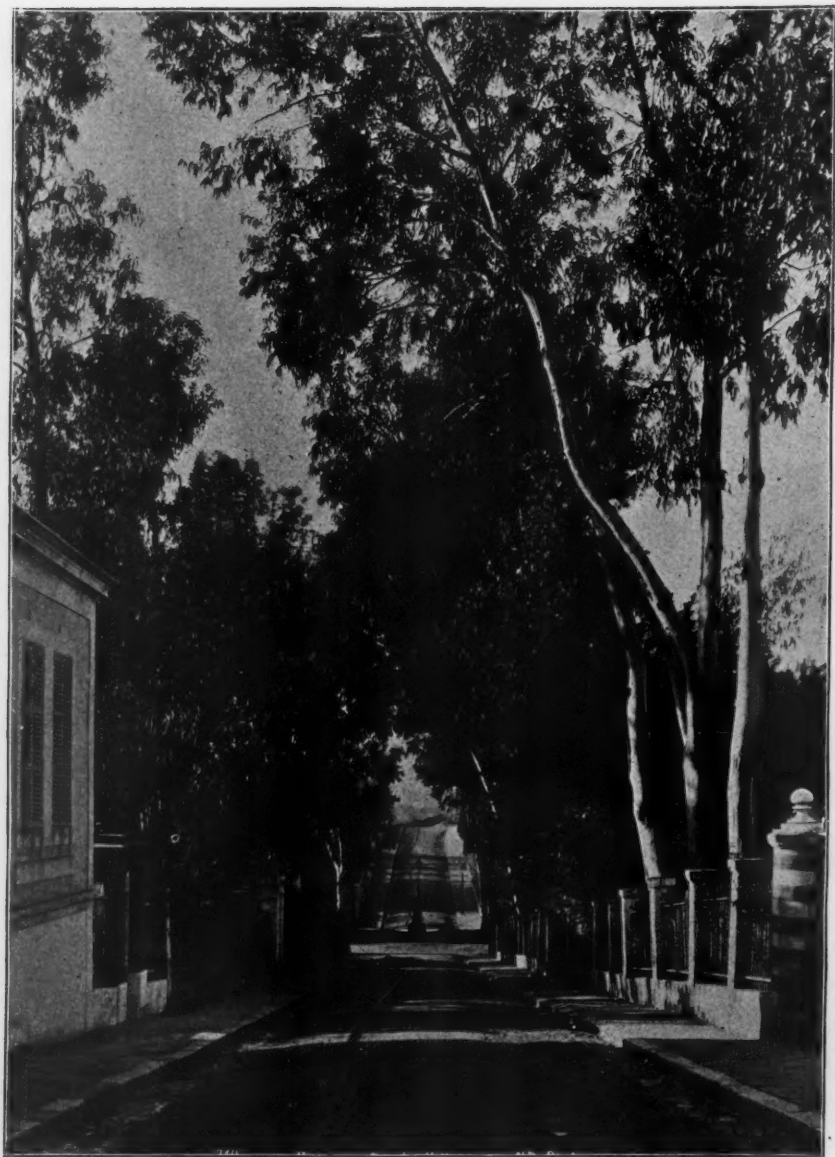


**REPORT OF  
U. S. FORESTER.**

## TABLE OF CONTENTS.

THE EUCALYPTUS AS A SHADE TREE IN THE STREETS OF SAN RAFAEL...Frontispiece.	
THE AMERICAN FORESTRY ASSOCIATION.....	1
I.—The Eighteenth Annual Meeting at Washington. (From the Official Notes of the Recording Secretary.)	
II.—Report of the Board of Directors .....	5
III.—The Resolutions Adopted.....	9
IV.—The Treasurer's Report .....	10
THE SCIENTIFIC BASIS .....	10
THE EUCALYPTUS IN THE TROPICS .....	11
Its Rapid Growth and Value as a Sanitary Agent, Acting as a Pre- ventative of Malaria. (By the Founder of THE FORESTER.)	
A YEAR'S WORK IN FORESTRY.....	13
Annual Report to the Secretary of Agriculture. (By the Forester of the Department of Agriculture.)	
STUDYING THE AMERICAN FORESTS.....	18
Forest Development.	
Studying the Adirondack Forest.	
Forest Work on the Pacific Slope.	
Investigations in North Carolina.	
EDITORIAL.....	21
Current Comment.	
Tree Protection for the Suez Canal.	
A Momentous Purchase.	
A Few Congratulations.	
Amazonian Rubber Trees.	
American Lumber in Paris.	
What Substitute for the Forest?	
A Pertinent Question.	
The Christmas Tree.	
Sounding the Tocsin.	
RECENT PUBLICATIONS.....	24





THE EUCALYPTUS AS A SHADE TREE IN THE STREETS OF SAN RAFAEL.

Throughout the Riviera the Eucalypts are famous shade trees for gardens and streets because of their beauty, their rapid growth and sanitary influence.

# THE FORESTER.

VOL. VI.

JANUARY, 1900.

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## The American Forestry Association.

**The Eighteenth Annual Meeting Held at Washington.**

FROM THE OFFICIAL NOTES OF THE RECORDING SECRETARY.

In compliance with Article XI. of the Constitution and By-laws, and pursuant to the notice published in the November issue of *THE FORESTER*, the American Forestry Association held its eighteenth annual meeting on December 13, 1899, in the hall of the Cosmos Club, Washington, D. C.

The president of the Association, Hon. James Wilson, Secretary of Agriculture, being unavoidably absent, the chair was occupied by the first vice-president, Dr. B. E. Fernow, Dean of the New York State College of Forestry, who called the meeting to order at ten o'clock.

After the reading and approval of the minutes of the last annual meeting, the report of the Board of Directors was submitted, as hereafter printed in full.

The Chair expressed his pleasure at the progress of the Association during the past year. He noted the change that has taken place in the membership since seventeen years ago. The early members were enthusiasts, he said, and for years the Association went on with no definite policy. After some ten years the object of the work began to be formulated. Now a new generation has arisen, and the character of the Association seems to have changed. The profession of forestry is now coming to the front. The planting of seventeen years has begun to bear fruit. It is pleasant to know that the hard plowing was not in vain.

In response to a request of the chair, Mr. E. A. Bowers, of New Haven, Conn., sketched briefly his connection with the forest movement. He had felt confident that the reform in the treatment of the national forest lands was bound to come, and he believed that this Association has been the center to which people had turned when they wished to accomplish something in forestry. The present reservation system, he said, was the result of the work of this Association. But there is still work to do, and he thought it wise to keep the Association going. He complimented *THE FORESTER* and thought it would be a fatal mistake to discontinue it. But positive action must be taken on the financial question to provide funds to carry it on energetically. Next in importance to that, he said, is the project to consolidate the forestry efforts of the United States. Congress has at last realized the necessity of a forest policy. Now it must harmonize the work.

Mr. F. H. Newell, Hydrographer of the U. S. Geological Survey, also expressed his belief in the wisdom of publishing a good journal of forestry, and he also hoped that the Association might determine upon some plan for consolidating the Government work in forestry.

The report of the Board of Directors was then approved.

The report of the treasurer was read, as hereafter given.

The Chair named Messrs. George B. Sudworth and E. M. Griffith as an auditing committee, to which the report of the Treasurer was referred.

The Chair also named Mr. F. V. Coville, Botanist of the Department of Agriculture, as chairman of a committee on nominations and resolutions, and at the suggestion of Mr. Coville, the committee was completed by the addition of Messrs. Arnold Hague, F. H. Newell, Gen. C. C. Andrews, of Minnesota, and Prof. T. H. MacBride, of Iowa.

Mr. J. Keim Stauffer, assistant corresponding secretary, reported the present membership lists, there having been an addition of 203 members during the past year. Mr. Stauffer also stated, as manager of THE FORESTER, that he was at present engaged in a systematic endeavor to increase the patronage and influence of the magazine, and detailed to some extent his editorial work.

Mr. Newell, in reply to a question by the Chair, said he thought the time was ripe for a large increase in membership, but that the machinery formerly in use for this purpose had not been running of late; regarding which, in reply to a question by Mr. Coville, Mr. Stauffer stated that a large part of the year's increase in membership had been due to the efforts of Mr. Thoburn, who had done considerable work in this line before he left for the West.

The Chair then called upon Mr. Elihu Stewart, Chief Inspector of Timber and Forestry for the Interior Department of the Dominion of Canada, to speak upon the condition of forestry in Canada.

Mr. Stewart said there was in process of formation in Canada an organization which they hoped would be of great benefit. For several years many had been aware of the enormous destruction taking place by fire. In twenty-five years' experience as a land surveyor he had become impressed with the necessity of doing something. A few years ago he urged upon the Premier the urgent necessity of a system of forestry. Recently he had been put in charge of the organization of such a system. In Canada they have the same difficulty, he said, as in the United States. The ownership of the forest land is divided between the provincial and the general governments. There are immense tracts of Spruce well worthy of preservation. There is, of course, a great amount of prairie land, but even in the prairie land there are large belts of timber. The Premier, he continued, is quite advanced in his ideas about tree-planting on the plains. There are experimental farms on the plains, which have shown conclusively that trees can be grown on arid land. These farms are under the Agricultural Department, but the land is owned by the Interior Department, under which comes also the Geological Survey. He had proposed the establishment of a Bureau of Forestry, one function of which should be to send out experts to lecture at the farmers' institutes which are held all over the Northwest. The Deputy Minister proposes to have them give instruction, also, as to tree-planting. One of the greatest works that can be undertaken is to prevent forest destruction by fire. He thought that for one tree cut by the lumbermen, ten have been burned. His idea is to map out the country that is surveyed, and have exploration surveys of the rest. Some reserves have been made, one extending from the Bow River to the boundary. He hopes to divide the country up into districts, each in charge of a fire warden, who will select assistants to be called out in case of fire.

Gen. C. C. Andrews, Chief Fire Warden of Minnesota, who began forestry agitation ten years before this Association was formed, as the Chair stated, was called upon to explain the workings of the fire warden system of Minnesota.

Gen. Andrews spoke of his having been present at the first meeting of this Association, in 1882, and regretted that he had not been able to attend another annual meeting until the present one. He was still studying forestry, he said, and was glad to see so many young men entering upon the same work. The system in Minnesota is very



similar to that in other states, said General Andrews, but there is some central authority. The pay of the county wardens is not left to the counties, though not a dollar can be paid them without the approval of the County Commissioners. The pay is limited to \$15 per year, at \$2 per day. In the unorganized territory the chief fire warden gets some settler to act as warden. In a dry and dangerous season the State can expend \$5,000 outside of the local expenditures. This is a standing appropriation. The chief fire warden can mass his force anywhere, and send them to any threatened spot. The law is an experiment, he said, but while there have been fires, the fire wardens have succeeded in saving a great deal of property. In Wisconsin and in Michigan there have been very serious fires. Gen. Andrews believed that a fire warden system in those States might have diminished or even prevented them. If a park could be established at the head-waters of the Mississippi he thought it would help forestry. He described the 800,000 acres composing the region which it is proposed to set aside as a park. He urged the friends of forestry to help in getting this park, or at least a reserve.

The Chair called attention to some of the difficulties encountered heretofore in the enforcement of the fire warden system in New York. This year, however, it had become possible to pay the fire wardens directly by the State, and a remarkable change had resulted, he said. He thereupon invited Lieutenant Governor Timothy L. Woodruff, of New York, President of the Forest Preserve Board of that State to define the status of the forestry movement in New York.

Governor Woodruff said that he had attended a meeting of the Forest Preserve Board at Albany just the day before, when Colonel Wm. F. Fox, Superintendent of State Forests, upon learning that he was coming to Washington, exacted a promise that he would drop in at this meeting, and at least express the Colonel's regrets at his enforced absence. The Governor said he had always been much interested in the work of forest preservation and cultivation. For many years he had been a regular habitué of the Adirondacks, and when he first went to Albany officially he found Governor Black an earnest advocate of true forestry. They talked it over, he said, and as the outcome of their enthusiasm evolved the act of 1897, by which three State officials were to be constituted a board of forestry. In that work he had taken more pleasure and satisfaction than in any he had ever done. He called attention to the fine central position of the Adirondack reserve, which he stated contained some five million acres. Another million in that region is in the hands of clubs, and so is safe from denudation. He explained the purpose of the Cornell tract, most of which is primeval forest, and spoke very highly of Dr. Fernow and his work. From that tract he expected great benefit would be derived. Some of the acreage would bring as much as \$10 an acre for timber. New York, he said, will be able to secure a large revenue from the State forests when they are properly taken care of. There will be another constitutional convention in 1915, before which time he hoped Dr. Fernow would have so demonstrated the best methods of scientific forestry for New York that there would be no opposition to legislative measures looking to the practical utilization of these forest lands so as to yield a revenue to the State.

At the conclusion of Governor Woodruff's remarks, which were warmly received, a recess was taken until two o'clock in the afternoon.

#### Afternoon Session.

At the opening of the afternoon session the Auditing Committee reported that they had examined the treasurer's accounts and found them to be correct.

Mr. Coville, for the Nominating Committee, reported the renomination of all the old officers, with the addition of Mr. Henry Gannett as treasurer, in the place of Mr. George P. Whittlesey, who had requested to be relieved.

On motion of General Andrews, the Secretary was authorized to cast the ballot of the Association for the officers nominated, and they were declared duly elected.

The report of the Committee on Resolutions was then presented by Mr. Coville, and was adopted as read, without discussion. (Hereto attached.)

At the request of the Chair, Mr. Gifford Pinchot, Forester of the Department of Agriculture, explained the work of his Division, mainly by reading extracts from his annual report to the Secretary. He described the reorganization of the Division, and detailed the work which each of the four sections is engaged in. An interesting fact mentioned was that at the request of the Secretary of the Interior, the Division of Forestry will prepare working plans for the forest reserves. He stated that the Geological Survey was in close touch with his Division but that unless the Interior Department makes the first move towards consolidation, he did not see clearly how it could be accomplished.

The Chair said he thought there should be a definite proposition for consolidation submitted to Congress. Little had been accomplished toward getting the reserves until that line of action had been adopted. He thought it was the proper function of this Association to formulate a definite proportion on this new project.

Mr. Coville moved that the Board of Directors make this project a feature of their legislative work, and that the Legislative Committee of the Board be directed to consider the advisability of drafting a bill for consolidation, if after deliberation it should seem advisable.

An interesting discussion followed as to the proper executive department to take charge of such consolidated work. The Chair remarked that the present condition of things had come about from perfectly natural reasons; and he thought it best to establish first an enforced coöperation and division of work between the Division of Forestry, the Geological Survey, and the General Land Office. This would perhaps prepare the way for consolidation. The Interior Department has control of the lands, and it might require too great a change to transfer the work of the General Land Office to another department. For the present, therefore, he favored merely an enforced coöperation.

Mr. Bowers advocated no half-way measures. We should ask for what we think is the right thing, he said. The Land Office is merely a selling office, he continued; it was organized to dispose of the public lands to settlers, and was not meant to be a permanent bureau. But as the reserves are in the hands of the Interior Department, it might be best to make the proposed forestry bureau a part of that Department, though separate from and independent of the Land Office. The Department of Agriculture is an investigating or scientific department rather than an administrative one, he said, and so he favored putting the forestry bureau with the Interior Department, and taking into it the expert force from the Department of Agriculture.

Mr. Coville spoke of the rapid growth of the work in the latter Department and said that there is a general tendency to concentrate in that Department work requiring scientific investigation; and yet it has a large amount of purely administrative work. He cited the Bureau of Animal Industry in which about ninety per cent. of the work is administrative. The Weather Bureau, also, is a great administrative division. He therefore thought that a bureau of forestry might very properly be placed in the Department of Agriculture. It would be a better institution in fifty years from now, if placed there.

Professor Thomas H. MacBride, of Iowa State University, thought that the present situation in forestry calls for investigation as well as administration, and he therefore advocated placing the bureau of forestry in the Department of Agriculture. Forestry is a phase of agriculture, and it would be a mistake, he said, to take it away from that Department. Along these lines, too, he believed we could appeal successfully to the great farming portion of our population.

Mr. Pinchot said that if the Government forestry work is to include tree-planting and working-plans for cultivating the reserves, then it is a serious question whether



that kind of work can be handed over to the Interior Department. These matters are very largely questions of investigation and experiment.

Mr. Bowers remarked that until the lands are all segregated the property will be, at least in part, in the hands of the Interior Department. But he disclaimed any prejudice in the matter.

The Chair added that it took four years to mature the policy of forest reserves, and the probability is that by the time any bill for consolidation can be matured, the boundaries of the reserves will be known. It will be easy then, he thought, to transfer their control to the Department of Agriculture.

Mr. Coville suggested that the new bureau should not undertake the clearing of the titles to the land or the marking of the boundaries of the reservations. But when the Land Office had cleared the titles and the Geological Survey had marked out the lines, those bureaus should have nothing more to do with the reserves. He also pointed out that the work of the Department of Agriculture is now so large that the Secretary is a very busy man, and so there is less likelihood of the integrity of any bureau in that Department being interfered with by any new Secretary. This concluded the discussion.

A vote of thanks was tendered the Cosmos Club for its hospitality in affording the Association the use of the hall, and, on motion of Mr. Coville, the meeting then adjourned.

In the evening those present at the meeting were entertained informally by Mr. Gifford Pinchot at his residence on Rhode Island Avenue.

### Report of the Board of Directors.

At the last annual meeting of the American Forestry Association the Executive Committee was dissolved and its duties devolved upon the Board of Directors, which presents the following report on the progress of forestry during the past year.

Advancement is observable both in the direction of depending public sentiment and in that of specific legislation and executive action. We are now entering upon a new era, marked clearly by altered points of view, to which the development of the last twenty-five years has steadily, if not always perceptibly, trended. For the most part, the people have come to see and to appreciate the ends for which the Association has been aiming. Forestry, properly understood, and as distinct from the less commercial interests of arboriculture and landscape work, has emerged conspicuously as a recognized object of state and individual study and effort, and as a promising field both for private enterprise and for thoughtful statesmanship.

It was in May, 1898, that an important increase in the appropriation of Congress for the administration of the Federal Forest Reserves enabled the Secretary of the Interior to place in the field a more nearly adequate Forest Service. The forest ranger system as it now exists may hopefully be regarded, subject, of course, to important elaboration and extension, as the first step towards a scheme of forest protection that promises to be substantially effective. In the suppression and avertance of forest fires the present system has already shown encouraging results.

Since September, 1898, seven new reserves have been added. These are the Trabuco Canyon and the Fish Lake Reserves, the Gallatin Reserves, the Gila River, Lake Tahoe, Santa Inez and Prescott Reserves, with a total acreage of 5,250,136 acres. The Mount Rainier Reserve, originally created by President Cleveland, has been reduced by 207,360 acres, which have been set aside to form the Mount Rainier National Park.

The U. S. Geological Survey is steadily pursuing its all-important work of surveying, describing and mapping the lands included in the reserves. The work of mapping has progressed in the Flathead and Lewis and Clarke Reserves of Montana, the Priest River and Bitter Root Reserves of Idaho, the Cascade Reserve of Washington and the Uintah Reserve of Utah.

The examination of the forests of the reserves and adjacent regions has, during the past season, been completed in the Mount Rainier Reserve of Washington; has been continued in the Olympic Reserve, nearly completing that valuable forest region; has been commenced in the Cascade Reserve of Oregon, and the reserves of the Sierra Nevada of California. The work of estimating the supply of standing timber, which was completed for the State of Washington last year, has been continued into Oregon, and most of the stand of that State has been secured. It has been continued in California, with the prospect of completing that State during the coming year. Similar estimates are being made for the States of the Great Lakes, Michigan, Wisconsin, and Minnesota, the work being carried on jointly by the Department of Agriculture and the Geological Survey.

General public interest in forestry has increased in a remarkable degree, shown by the attitude of the press and the favorable legislative action which has followed agitation among the states; New York, with its College of Forestry and management of the college forest, both now well under way, under the direction of Dr. B. E. Fernow, takes, perhaps, the first rank. This year a further appropriation of \$300,000 was made for additional purchases of forest land in the Adirondacks, bringing the whole amount expended for this purpose since the organization of the Forest Preserve Board in 1897 to a total of \$1,800,000. Though the purchases are not yet completed, the figures contained in the last report of the board show a total area of lands in the Adirondacks reserved to the State amounting to something over 1,100,000 acres. More significant still, as marking the beginning of a distinct movement on the part of private owners of forest lands, is the work in private forestry, also in the Adirondacks, which has been regarded as satisfactory in the main both by the persons interested and by the Division of Forestry under whose guidance it has been carried on.

California, as usual, has been most active in all departments of forest agitation, and although comprehensive legislation failed of the governor's approval at the very close of the last session of the legislature, the intent of the plan was carried into operation by the forest organizations themselves. A noteworthy happening has been the offer of certain Redwood manufacturers to furnish \$1,000 in money, as well as to provide subsistence in their camps and transportation over their lines for the agents of the Division of Forestry, in order to hasten the time by a year when investigations on the growth and reproduction of the Redwood could be begun. At the University of California a school of forestry may be established in the not distant future.

Pennsylvania also has made marked progress. Her forest fire law has received a useful amendment. The Commissioner of Forestry has received added authority, conferring power to purchase lands for creating forest reservations whenever there are available funds in the treasury for that purpose. Under the safeguards provided there is no necessity for delay in awaiting special legislation for each new case of purchase. Finally, the Commission authorized some time since to select three tracts of land of at least 40,000 acres each, is about to take final action, and a recent communication from Dr. Rothrock states that within the next few months probably 200,000 acres of forest land will be reserved to the State of Pennsylvania.

Minnesota has been especially energetic, and has been fortunate in having the efforts of her own citizens ably assisted by enthusiastic friends from other States, in the endeavor to induce Congress to set apart vast timber lands for a National Park and Forest Reserve. A State Board of Forestry has been appointed, whose members have been chosen on a well-considered plan. The special points of this admirable act are its provisions for the acceptance by the Board of lands granted, deeded, or devised to them for the purposes of forest reservations, and for the reinvestment of the moneys to be derived as revenue from the proposed management. Assurances have been given that gifts, under these provisions, amounting to thousands of acres, will very soon be made to the Board. An executive committee has been chosen, composed of Captain Cross,

president of the board, General Andrews, its secretary, and Professor Green. It took action at once to arrange for a visit of inspection of the Minnesota forests by Dr. C. A. Schenck.

Michigan has likewise created a permanent forest commission, with the Commissioner of the State Land Office as ex-officio member. The personnel of the commission, headed by Mr. Arthur Hill, a prominent lumberman, promises most favorably. The main provision of the act is that the governor appoint a State Fire Marshal, for a term of two years. The marshal appoints two deputies, one of whom shall reside in the upper peninsula; and in addition, city and town fire marshals throughout the State are made deputies. A bill to create the office of fire warden, with provisions based on the Massachusetts law of 1894, was introduced but failed of passage. Its supporters, however, have good hope of securing its enactment at the next session of the legislature.

What Minnesota has been attempting for the North and West, North Carolina is urging for the South, and for the seaboard States in general. A great National Park is proposed for the crest of the Alleghenies primarily for timber preservation.

Georgia has passed a significant amendment to her forest fire law by which the setting of fire to woods wilfully, carelessly, or negligently is now made a misdemeanor, whereas formerly malicious intent was specified, a provision which made the law inoperative from the difficulty of establishing proof. A number of other States stand in need of similar amendments before their statutes, long dead on the books, can be rendered effective.

Wisconsin has provided that forest wardens, formerly appointed in every organized town, are henceforth to be appointed in certain counties, while in the remaining counties they are to be appointed only on request of the supervisors.

In the matter of tree planting and conservation on a small scale Indiana has passed a law offering partial remission of taxes on definite proportions of holdings covered with a specified number of forest trees per acre, either as virgin forest or as planted or partially planted to that number. Such areas are to be assessed at a valuation of \$1 per acre.

Nebraska and Nevada have repealed their laws providing bounties for forest trees planted and cultivated. Like the bounty law of Pennsylvania, they have had small results because of the trivial inducement offered.

The Legislature of North Dakota recently established a school of forestry, located at the village of Bottineau; and a bill has just been introduced in the United States Senate (Senate Bill 158, December 6), providing for the grant of thirty thousand acres of public land, to be selected by the proper authorities of the State, to aid in the maintenance of the school. The bill has been twice read, and is now referred to the Committee on Public Lands.

Oregon has created the office of game and forest warden.

The meetings of the American Forestry Association during the past year have been indicative of a great advance in forestry. A special summer meeting was held at Los Angeles, California, on July 19 and 20. Prior to the date of the meeting the local press made frequent mention of the coming convention, laying stress on the importance of the subject and the value of an expert discussion of it. This, the first meeting of the Association on the Pacific coast, was very well attended. Papers on "The State and Forestry," by Hon. W. S. Melick, of Los Angeles; "The Bitter Root Forest Reserve," by Mr. J. B. Lippincott; "Some Relations Between Forests, Percolation and Water Supply," by Mr. H. Hawgood, and many others of value were read and discussed, and have since appeared in *THE FORESTER*. The resolutions passed urged Federal action of the broadest and most effective character for the preservation, restoration and utilization of the national timber lands and water supplies; favored the adoption of a system of leasing public grazing lands, under which revenues would be devoted to the development of forest preservation and irrigation, but without any grant in trust or

otherwise of the title of the lands to the States; commended the action of the National Government, especially the Secretaries of the Interior and of Agriculture, for their investigations of forest problems, and the National Irrigation Congress and the National Irrigation Association, and local associations, such as the Forest and Water Society of southern California, for their efforts to awaken and unify public sentiment. Special stress must be laid on further resolutions advocating the consolidation and unification of the national forest work; urging upon the resident the reservation of all public timber lands pending full examination of their character; and endorsing the request of Hon. R. J. Waters to secure the passage of a law making every one responsible for damage done by fires made or used by him on all reserved lands.

A special meeting of the American Forestry Association was held at Columbus, Ohio, on August 22d and 23d, under the auspices of the Columbus Horticultural Society. The enthusiasm shown at this meeting counted for far more than a larger number of less interested members might have done. Much profit was derived from the discussion based on twenty questions which had been printed on the programme. The resolutions presented and passed relative to the collection of international forest statistics merit express emphasis, representing as they do an imminent requirement. They read as follows:

"WHEREAS, The American Forestry Association, at its meeting at Boston in 1898, took action looking to the collection of international forest statistics; and

"WHEREAS, The Exposition of Nineteen Hundred in Paris offers a most favorable opportunity for an International Congress of Foresters to consider and act upon this and other matters of great common interest;

"Therefore, be it *Resolved*, That the American Forestry Association respectfully petitions the Commission Internationale des Congres Agricoles, through its President, Monsieur Méline, to call such a Congress at Paris during the International Exposition; and

"*Resolved*, That the Board of Directors is hereby empowered both to communicate these resolutions to Monsieur Méline and to take such further action as may be required."

Copies of these resolutions have accordingly been communicated to M. Méline, through whose instrumentality the desired Congress will undoubtedly convene. Very valuable results are to be anticipated from its discussions and action.

The following papers were read at the special meeting: "Observations upon Woodlands of Ohio," by Mr. John F. Cunningham; "Natural Regeneration of Forests in Old Fields in Eastern Kentucky," by Professor S. E. Mason, of Kentucky; "Lumbering in Northern Michigan," by Dr. W. J. Beal, of Michigan; "The Rate of Growth and Temperature of Various Varieties of Forest Trees," by Professor W. R. Lazenby, of Ohio; and a "Capitalistic Review of Conservative Lumbering," by Dr. C. A. Schenck, of Biltmore.

The Division of Forestry, a part of whose practical work in coöperating with private owners has been alluded to already, has made another novel beginning for the encouragement of practical effort. It has undertaken coöperation with tree planters, involving inspection of growing plantations and of proposed plantation sites, and the giving of advice and assistance in the selection, planting and subsequent care of economic species. Professor J. W. Toumey, lately appointed Superintendent of Tree Planting, and Mr. Hall, his assistant, are already fully engaged with all the work to which they can attend. Enlargement of the field corps of the Division is becoming absolutely essential to the successful prosecution of these designs. The establishment of the position of Student-Assistant to the Division has been one of the recent changes. The number of applications has far exceeded the positions available. During the past Summer student-assistants to the number of 28 were at work in the field. They were divided into three groups, under expert supervision, one in Washington and

Oregon, one in California and one in the Adirondacks. Those detailed for the West secured data of value on the growth and reproduction of the Red Fir and Redwood, which will be worked up in the form of a preliminary report on those trees. The assistants are taking up their work well and prove an important addition to the working force of the Division. Above all, they are undergoing a preparatory training which will fit them at some future time to meet the call for technically trained men, which the rapid growth of forestry in the country will soon make heard.

THE FORESTER passed, in April, under the charge of Mr. Stauffer, its new editor, who has materially improved the make-up of the paper and won for it a largely increased circulation and appreciation—the latter being shown by frequent letters of approval which the editor has received from members of the association, and the former by the following: In the treasurer's report last year was recorded but one subscription to THE FORESTER, showing the magazine had no circulation outside the association membership. This year the treasurer has received from subscriptions, less agents' discounts, the sum of \$114.87. It is but fair to attribute these individual subscriptions to the improved character of the magazine. During the same time 203 new members have joined the association.

The extent of the improvement can be best understood from the following figures comparing the corresponding periods of 1898 and 1899: May to November, 1898, inclusive, body articles, 34, notes, 37, news items, 3; May to November, 1899, inclusive, body articles, 50, notes, 99, news items, 153.

In 1898 one number consisted of 16 pages, of which but 10 pages were reading matter; during the same period of 1899 every number had at least 32 pages, and several as many as 40 pages complete.

In considering the treasurer's report it is interesting to note that had the annual dues been paid promptly by all the members there would have been no necessity for drawing upon the bonds of the Association for temporary assistance.

Another fact worthy of note is that the expenditures for 1898 included but 11 months' issues of THE FORESTER (January to November, 1898, inclusive). The present report includes not only 12 regular issues, larger in average number of pages as well as in size of edition (the July issue having amounted to 6,500 copies, nearly three times the usual monthly edition of 1898), but in addition thereto there was a reprint of the November, 1898, issue (the original edition having been but 1,500 copies), the additional cost being included in this year's expenditures. These facts seem pertinent to the treasurer's report.

## The Resolutions Adopted.

### Report of the Committee on Resolutions at the Annual Meeting, 1899.

The American Forestry Association expresses its deep appreciation of the recent legislation and increased appropriations made by the Congress of the United States for the protection of forests and the development of forest management. The active interest of the Secretary of the Interior and the Secretary of Agriculture in devising wise systems of administering these laws is heartily commended.

The popular approval of the action of the President of the United States in creating new forest reserves points to the

desirability of reserving the whole area of public forest lands, a proposition which this association fully endorses.

The Federal laws relating to the public forest lands are now administered by three distinct branches of the government: the General Land Office and the Geological Survey, in the Interior Department, and the Division of Forestry, in the Department of Agriculture. This is a situation which is prejudicial to sound coördination and economic administration of the various branches of the forest service.



The association therefore urges upon Congress the consolidation of this service under one administrative head.

The cordial thanks of the American Forestry Association are extended to the Federation of Women's Clubs for their interest in the forest movement and their active support of forest legislation.

The Association endorses the proposition that a Forest School be established at the University of California and that a

suitable demonstration area be reserved for use in connection therewith.

The Association expresses its appreciation of the work of the American Park and Outdoor Art Association in educating the public to a proper use of our native forests.

The Association hereby expresses its gratification at the prospect of the establishment of National Parks and Forest Reservations in Minnesota and along the crest of the southern Alleghenies.

### The Treasurer's Report.

George P. Whittlesey, Treasurer, in account with the American Forestry Association.

DR.		CR.	
To balance, Dec. 1, 1898.....	\$ 640.46	By printing 12 numbers of THE FORESTER.....	\$1620.91
To annual dues.....	1622.30	By salaries of editors.....	1225.00
To Life Membership fees (3).....	150.00	By clerk for FORESTER office, 13 weeks.....	52.00
To donations.....	333.02	By cuts for THE FORESTER.....	87.46
To sale of Proceedings.....	16.07	By sundry expenses of FORESTER office (stationery, postage, printing, rent, etc.).....	184.52
To subscriptions to THE FORESTER.....	114.87	By expenses of corresponding Secretary and Treasurer.....	191.92
To interest on bonds and on bank deposits.....	112.39	By expenses of annual meeting, 1898 .....	11.25
To loan from Washington Loan & Trust Co.....	1000.00	By balance on hand, Dec. 1, '99	616.05
	<u>\$3989.11</u>		<u>\$3989.11</u>

December 1, 1899.

RESPECTFULLY SUBMITTED.

### The Scientific Basis.

When George P. Morris begged the woodman to spare the tree, to refrain from touching as much as "a single bough" of it, he was not, the poem proves, animated so much by love of trees in general as by his sentimental attachment to that particular tree which in youth had sheltered him. But to-day all over the United States the woodman is being reasoned with by a large and steadily increasing number of people whose remonstrances have a scientific rather than a

sentimental basis. They have been educated to realize that the reckless cutting down of trees is a serious menace of the country's property. Frank S. Black will always be held in grateful remembrance by his fellow citizens of New York because of the valuable services which he rendered the Adirondacks while he was Governor. He was largely instrumental in procuring the passage of measures which protect the trees of those splendid forests from the axe of the vandals who hold that the best use a tree can be put to is to cut it down.—*N. Y. Mail and Express.*



## The Eucalyptus in the Tropics.

**Its Rapid Growth and Value as a Sanitary Agent, Acting as a Preventative of Malaria.**

BY THE FOUNDER OF THE FORESTER.

The greatest drawback to the exploitation of the rich lowlands of the tropics is and has always been fever. Excepting those diseases due to the negligence and uncleanness of mankind, the most frequent of tropical orders are malarial in nature. Had it not been for the use of quinine and other similar drugs, products of the genus *Cinchona*, a group of magnificent trees, natives of the high altitudes of the Andes between the U. S. of Colombia and Bolivia, even the exploration of a large part of these regions would have been impossible.

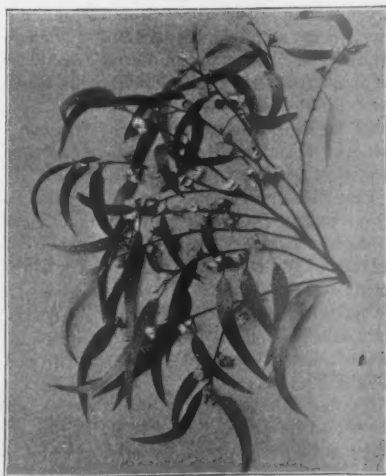
Extensive plantations of *Cinchona* trees have been established in the Himalayas, Ceylon, Java and Jamaica. Although these drugs have been indispensable they have in no way affected the source of these diseases. Their nidus is the undrained marshland which fringes the coast, rivers and inland waters of almost every tropical country.

The deforestation and cultivation of this extremely fertile but imperfectly drained land has increased rather than diminished the amount of fever. What is needed therefore most of all is drainage and this can be effected more easily, quickly and economically through the planting of the *Eucalyptus* than in any other way.

The cause of malarial fever is known. It is due to a minute amœboid organism which breeds in warm, stagnant, marshy places. Just how this is communicated to the human body is a question. Some say that the disease lurks in miasmatic vapors and that breathing the night air in certain places is sufficient; others claim that drinking-water is the vehicle, and others that mosquitos carry it from the marshes and inoculate our blood. No matter how it reaches the human body, the indirect cause

remains the same. Once eliminate the marshland and you deprive these pestiferous organisms, including the mosquito, of their breeding place and thus indirectly reduce the amount of fever.

The malarial condition of our South is mainly due to the ill-treatment of forest lands and the formation of stagnant marshes in consequence. It is a noteworthy fact that densely forested swamp



THE FLOWERS OF THE EUCALYPTUS.

Because of their peculiar beauty and fragrance large quantities of these flowers are shipped north from the Riviera in Winter for decorative purposes. They yield an immense amount of honey; many apiaries are located in *Eucalyptus* groves of Australasia.

regions, such as the Dismal Swamp of Virginia and North Carolina, are free from malaria and perfectly healthy, while the adjacent burnt-over pine and Savanna

lands are famous for their unhealthfulness. Just as the sanitary conditions of the Landes of France and the Italian Campagna were rendered healthy by tree growth, so is it possible to improve the sanitary condition of the southern United States and West Indies.

Only reflect that the leaves of a medium aged Beech tree if spread out would cover eight times the area that the growth in question occupied and it will be quite apparent that even in the hardest downpours almost one-fifth of the water is intercepted by the foliage and thence flows slowly down the trunks or passes off in vapor. Add to this the immense quantities of water transpired by the leaves, often, as with the Eucalyptus, several times the amount which falls on its surface in the form of rain.

That the aromatic fragrance of the Eucalyptus has some mysterious influence in preventing malaria is probably fiction, although the oil has medicinal qualities, but it is true that every Eucalyptus tree is a powerful pump which is constantly at work sucking the water out of the soil in a degree which varies of course with the condition of the atmosphere.

The Eucalyptus is easily propagated and grows under favorable influences with remarkable rapidity. It shoots upward at the rate of ten feet a year and grows higher than any other species of the plant world. In half an ordinary lifetime it reaches colossal dimensions and in the short space of ten years it grows larger than the ordinary timber trees of the temperate zone.

It must not be supposed, however, that the wood is soft and worthless. The fact that a tree grows rapidly is no indication whatever of the quality of its wood. The Yarrah (*Eucalyptus marginata*), in fact, is almost indestructible and is perhaps unequalled for ships, underground and underwater works, railroad sleepers, pilings, etc.

Crops may be raised between the rows of trees. According to the Italian method the leaves are edge to the sun so that the small amount of shade it throws is rather a benefit than a drawback. In this way marshy regions are rendered not only healthy, but tillable.

The whole aspect of the landscape has been changed in California and the Riviera by the Eucalyptus. In fact no species of trees is capable of exerting a more beneficial influence, scenic, industrial and hygienic than those of the genus *Eucalyptus*. It belongs to the famous myrtle family and has for its relatives the guava, allspice, clove and Brazil-nut. The time is now opportune to plant this tree in the neighborhood of Cuban and Porto Rican seaports.

Eucalyptus plants have been extensively distributed gratis to the people of the Island of Jamaica by the Department of Gardens and Plantations. A paper describing the most interesting plants in Castleton Gardens, in the Jamaica *Bulletin*, 1894, says: "Mr. Bosisto, whose extensive works for the manufacture of Eucalyptus oil in Australia are famous, wrote on the subject nearly twenty years ago, giving results which he had obtained by experiment, not in a chemical laboratory only, but by dealing with four tons of material daily for about twenty years. He showed not only in what way the leaves acted, but pointed also to the very powerful root action which absorbs immense quantities of water from swampy soils. The roots thereby, to a great extent, drain swampy land and their absorbent powers are assisted by the very abundant leaf-surface which enables the tree to send off waters into the atmosphere as healthy vapor. This draining action is in itself of immense service in preventing the possibility of the malarial germs finding a suitable soil. Australia possesses, in a very high degree, an immunity from fever maladies, the fevers of the large towns being due to unsanitary conditions."

The improvement in the health conditions of the Campagna near Rome by the planting of Eucalyptus has been disputed by Tommasi Condeli, but his assertions are contradicted by Torelli and Baccelli and by the monks who live in the convent of Three Fountains and who are well able to judge in the matter. Mr. Fawcett, of Jamaica, ascertained on the spot from the monks the beneficial effects of the Eucalyptus plantation. This point has also

been touched upon in a paper on "Experimental Plantation of the Eucalyptus, near Rome," by Franklin B. Hough, first chief of the Division of Forestry at Washington.

Baron Sir F. von Mueller, Government Botanist in Melbourne, who died a short

time ago, should be called the "Father of Eucalyptology." By his writings and by the distribution of seeds of various species of Eucalyptus over the globe, he has done great service to mankind.

JOHN GIFFORD. D. CEC.,  
Ithaca, N. Y.

## A Year's Work in Forestry.

### Annual Report to the Secretary of Agriculture on the Work of the Division of Forestry.

BY THE FORESTER OF THE DEPARTMENT OF AGRICULTURE.

During the year the work of the Division has been reorganized throughout. The changes entailed, together with the introduction in the United States of practical and paying forestry among lumbermen, on a large scale, the progress of extensive investigations in tree planting, as a preparation for practical work with tree planters, and the very marked manifestation of public coöperation and interest in the work of the Division, especially among lumbermen, are the salient facts of the year. The extent of the coöperation is well indicated by the action of the Redwood lumbermen of San Francisco, who have voted to subscribe \$1000, of which \$550 is already in hand, and have offered free transportation over their roads and free subsistence in their camps to the agents of the Division, for the sake of advancing by a year the time when the Division, otherwise hindered by lack of funds, could begin work on the growth and reproduction of the Redwood.

In spite of the increase in its resources made by the last Congress, the Division finds itself wholly unable to cover the field of necessary work which lies before it. Public demands upon it for work of the first importance to the preservation and right use of forests in the United States remain unanswered for lack of means. It is earnestly hoped that the Division may be enabled adequately to take and use

during the next fiscal year the unprecedented opportunities created by the rapid awakening of the public mind to the meaning and value of practical forestry.

In accordance with the plans set forth in the last annual report, the work of the Division has been very largely field work. Since two weeks after the beginning of the fiscal year there has been no time, except during the Christmas holidays, when there have not been from one to seven parties in the field. Practical and paying forestry has been successfully introduced on two tracts of a total area of 108,000 acres, and has now entered its second year under greatly improved circumstances, while the preparation of working plans for conservative lumbering has been in progress on more than twice that acreage. Important modifications in practical methods of lumbering have been suggested by the Division and introduced by private owners on a large scale with marked success. Altogether more than 400,000 acres have come under the care or scrutiny of agents of the Division with a view to the practical introduction of improved methods, while the total requests for such work to date have exceeded 1,600,000 acres. The Division is totally unable to meet the public demand upon it in this direction. The necessary preparations have been completed for an offer, similar in its conditions to that which gave rise to these re-

quests, for the assistance of tree planters throughout the treeless regions of the country, and extensive preparatory studies are under way to discover the results of the immense amount of planting already done, very largely with poor results. The circular which makes this offer public has just appeared.

Forest fires have been studied both historically among newspapers and other records, and at some length in eight States in the field, and results of importance have been reached and will be published within the year. Studies of the growth and reproduction of five important timber trees have been begun with the idea of determining whether it will pay to hold timber land bearing these trees for a second crop and pay taxes. It is expected that the results for one species at least will be ready for publication during the present year. A series of careful historical studies of lumbering, and of the progress of forestry in the different States and in the country at large, has been undertaken. The forest history of one State is practically completed, and much additional material has been gathered. A plan for systematic contributions to the knowledge of North American forests has been devised, and has already yielded very valuable results. The Division has been thoroughly equipped with instruments for field work. A system for a photographic forest description of the United States has been worked out, and the collection is well under way. The mailing list has been carefully revised and increased from 1200 to 6000 names, including about 2000 newspapers, while the personnel of the Division at its highest was more than five times the total membership at the beginning of the last fiscal year. Throughout the year the Division has been in close, and to it most fruitful, coöperation with the forest work of the United States Geological Survey.

#### ORGANIZATION.

In view of the radical changes which have been made, a word on the organization of the Division is required. At present all its work is assigned to four sections,

each with a man of special knowledge and qualifications at its head. These are the Section of Working Plans (in charge of Henry S. Graves, Superintendent of Working Plans), to which all practical work in the woods is assigned; that of Economic Tree Planting (in charge of James W. Toumey, Superintendent of Tree Planting), whose function is sufficiently indicated by its name; that of Special Investigations (in charge of George B. Sudworth, Dendrologist) dealing with the habits and characteristics of trees which affect their use in practical forestry, and that of Office Work (in charge of Otto J. J. Luebker, Head Clerk). Because of the absence of the dendrologist in the field for several months on work of importance in connection with the United States Geological Survey, the Section of Special Investigations has been for the year in the immediate charge of the forester. The technical assistants, under the supervision of the heads of sections are of various grades, of which two only need be mentioned here.

The first grade, that of collaborator, is filed by experts of established reputation in forestry, lumbering, or tree planting, not otherwise connected with the Division who have knowledge of special value to it. They are not residents of Washington, but scattered throughout the country, and their function is to prepare and forward for publication treatises on subjects previously agreed upon. The result of the association of these gentlemen with the Division, of whom there are now eight, will be the preparation of authoritative statements of great value at a moderate cost. The pay of a collaborator is \$300 per annum.

The grade of student-assistant was created for two reasons: First, to provide trained men for the future needs of the Division, and second, to supply it at once with assistants of high intelligence at small cost. The great majority of student-assistants are college or university men. Only those who have declared their desire to adopt forestry as their profession are received, and among these a rigid selection is possible because the demand for places very largely exceeds the

number of positions. In the field, the student-assistants work under the supervision of trained foresters, with results of marked value to the Division, chiefly in the preparation of working plans and the study of commercial trees. Living usually at lumber camps, they keep the same hours as the men, and often, on the testimony of the latter, do the harder work. The practical experience they gain is in no sense intended to replace thorough training at a forest school. The pay of a student-assistant is \$25 per month. About twenty-eight student-assistants have been on the rolls of the Division since July 1.

The expenditures for salaries of all kinds during the year reached 62.2 per cent. of the total appropriation. This proportion would have been somewhat reduced had the field expenses borne by private owners been paid by the Division. A larger proportionate amount of field work during the present year will, it is hoped, tend to lower the present figure, which, under the circumstances, is not unsatisfactory. Last October, through the medium of Circular No. 21, an offer of practical advice and assistance was made to farmers, lumbermen and others in handling their forest lands, with a view of bringing about the substitution of conservative for destructive methods. The offer provided for the preparation of working plans with full directions for work, as well as for practical assistance on the ground, without cost to the owner of wood-lots, but in the case of larger tracts at the cost to the owner of traveling expenses and subsistence, together with the necessary helpers, for the agents of the Division while in the field.

In response to the circular there were received during the year applications from 123 owners in thirty-five States for assistance in the management of 1,513,592 acres. Of these applications 48 were for large tracts covering together 1,506,215 acres, and the remainder were for farm wood-lots. Personal attention on the ground was given to 41 tracts covering about 400,000 acres in nineteen States. On the majority of these tracts it was found possible for the owners to carry out the working plans without personal as-

sistance, but on 15 of them the participation of the Division is required for the execution of the plans. On two of the latter, with a joint area of 108,000 acres, the working plans were put in execution early in the year, and at the present writing the first year's work has been successfully completed, and the second year's work is well advanced under very favorable conditions. A calculation based on exact measurements of the amount of lumber wasted by the prevailing practice of cutting high Spruce stumps in the Adirondacks led to a decided change for the better on the tracts just mentioned, and at the same time a marked reduction in the amount of young Spruce cut for road building was brought about. These are influential changes. A detailed account of the work on these two tracts, entitled "Practical Forestry in the Adirondacks," by Henry S. Graves, Superintendent of Working Plans, is now in press.

The total expense during the year under the ledger head "Working plans" was \$4,133.35, or 14.5 per cent. of the total appropriation. The expenditures of private owners, under the terms of Circular 21, amounted to 8 per cent. of the same sum, or \$2,239.23.

The work between July 1 and August 31 of the present year consisted in the preparation of working plans upon two large tracts in the Adirondacks, comprising an area of about 100,000 acres, in making preliminary examinations of seven additional tracts, and in the continuation of the work already in hand. In connection with the first a special study was made of the growth and production of Spruce on the eastern side of the Adirondacks and of Birch and Maple on the western slope. Additional application has been made for about 100,000 acres.

Studies have been in progress during the year on five species of commercially valuable trees to determine their rate of growth and to ascertain their special qualities in forestry. The more important of these studies deal with the Loblolly Pine in North Carolina, a tree of the first economic importance, and the Red Fir in Washington, also called Douglas Fir,



Yellow Fir, Oregon Pine, etc., one of the most valuable and widely distributed trees of the world. These studies have met with the most cordial reception from lumbermen, and have led to the expression of much friendly feeling and the rendering of much practical assistance, in addition to the contribution of the Redwood men of San Francisco, already mentioned.

The total lack of field instruments at the beginning of the year made necessary a very large expenditure for that account. At present the Division is well equipped with the indispensable material for effective field work, but at a cost for the year of \$1,766.48, or 6.2 per cent. of the total appropriation.

#### ECONOMIC TREE PLANTING.

In accordance with the recommendation made in the last annual report, the planting of experimental plats in coöperation with State agricultural experiment stations has been entirely discontinued, and arrangements have been made whereby the stations have taken over the plantations, together with the responsibility for them. This step was taken after a thorough study of the old plan, after careful examination on the ground of the plantations at nine of the eleven stations, and with the acquiescence of the authorities of every station. After considerable difficulty this matter has been entirely disposed of, with the exception of delayed settlements with two of the nurserymen who were under contract to raise seedlings for the use of the coöperative experiments. It has been replaced by two lines of activity: One, a careful study of the results of planting already done, in which all the species used in the coöperative plantations are represented, and from which practically all the results to be expected from them after many years may be obtained without delay and far more cheaply; and the other, the giving of practical advice and assistance to tree planters under the terms of an offer similar to that made to forest owners in Circular 21. The work involved in disposing of the coöperative experiments has delayed the publication of this offer (in Circular No. 22, recently issued) until the

present fiscal year, but the preliminary work was accomplished before it began.

Close relations have been established, through correspondence and by personal contact, between the Division and five of the most competent men in the treeless regions, and these gentlemen are now preparing, from the results of their past experience, supplemented where necessary by further investigations, reports on subjects of direct interest to the tree planter. It is believed that these reports will be of capital importance to this branch of the Division's work.

The expenditure of this section for the year was \$3,901.98, or 13.7 per cent. of the total appropriation. A very considerable part of this sum was expended under contracts connected with the coöperative plan now laid aside. From July 1 to August 31, 1899, the studies and the preparatory work of the section have been continued, and the offer above referred to has been made known through the publication of Circular 22.

#### SPECIAL INVESTIGATIONS.

Field work on forest fires was carried on in Wisconsin through the courtesy of the geological survey of that State, in Colorado (two parties) and Montana through coöperation with the United States Geological Survey, and by members of the Division in the States of Washington, Florida, Georgia and New York.

A historical study of forest fires, with the purpose of ascertaining the amount of damage and the true place of fires in the economy of the forest, was begun in the latter part of July. The number of records obtained was 4,327, beginning in the year 1754. One thousand one hundred and fifty-five volumes of newspapers have been examined, and in addition about 500 other volumes. The available files of the best newspapers of seventeen States have been searched. Besides that made in the Library of Congress, extensive research has been carried on in New York, Boston and Madison, Wis. About 1,200 records have been briefed and transferred to a classified card index.

The expenditure under the ledger head



"Forest fires" was \$4,306.09, or 15.1 per cent. of the total appropriation. During July and August, 1899, about 1000 additional records have been obtained, so that the total is now considerably more than 5000. Field work was in progress in four States. A special study of reforestation on burnt land is in progress in the Medicine Bow Mountains of Colorado, and promises most interesting results.

A series of studies of North American forests by experts, with special knowledge of definite localities, has been undertaken during the year, and it is expected that three of them will be ready for the printer during the coming winter. Part of this work is in coöperation with the United States Geological Survey. From the character of the contributors to this series results of permanent value are confidently expected.

Historical studies of progress in forestry were begun for New Jersey, Massachusetts and other States, and practically completed for New York. During July and August, 1899, much material was collected for a general account of the progress of forestry in the United States, and of the practical application of conservative forest treatment in this country until now, which is much more frequent than is usually supposed. In photographic forest description of the United States noteworthy progress has been made during the year, although far less than is hoped for in the present twelve months. The collection is now in a position to grow rapidly and systematically. It has absorbed 1.4 per cent. of the total appropriation, or about the same amount as sundries and contingent expenses. Altogether the Section of Special Investigations has consumed 21 per cent. of the total appropriation.

No further readjustment of the work of the Division, and but slight addition to its personnel, will be required during the ensuing year. All the lines of work it is proposed to follow during 1899-1900, except the watershed investigation, were either fully organized or well begun in 1898-99.

Of the total amount of land submitted to the Division for working plans, about

1,200,000 acres have not been examined. During the ensuing year these tracts will be considered as fast as the force of the Division will permit, and working plans will be made for a selected number. One or more of the working plans already in preparation will be printed.

In addition to the completion of the work on the Loblolly Pine and the Spruce of the eastern Adirondacks and the continuation of work on the other trees already undertaken, the intention is to begin the study of the Coast Redwood in California without delay, and later, if money enough can be saved for that purpose, to take up the White Oak and the Hickories.

In addition to the studies now under way in economic tree planting, the work for the present year will consist largely, first, in giving practical assistance to tree planters in the selection of the right trees to plant and in planting them rightly, and, second, in an attempt to determine in definite figures the true effect of bare and wooded or brush-covered slopes on the run-off of streams. This problem is a difficult one, but it is believed that facts of real value may be brought to light. The vastness of the interests affected by the solution will justify the most persistent and careful work.

The field work and other lines of effort already begun are to be continued. Further results from the studies of North American forests and of forest history are expected during the year.

The extension of the historical work on forest fires to States not yet reached is urgently required, and field work will be carried on in the States where it is already in progress, and in special localities in the Southeastern United States. The collection of photographs will receive much attention during the winter.

GIFFORD PINCHOT.

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The financial benefits of forestry are evidently understood by the railroad company which, in Indiana, has set out a whole trainload of selected Catalpa trees, from which at maturity to cut ties.

## Studying the American Forests.

### Forest Development.

The offer made by the Division of Forestry, as outlined in Circular 21, to assist owners of timberland in handling their property to the best advantage by making working plans for them, has met with a most hearty response from all sections of the country, showing how strong was the feeling that the present methods of lumbering were not the best, either for the land or the owner.

More timberland (excluding the Government Reserves and State holdings) is under some form of forest management in New Hampshire than in any other State of the Union. Maine comes next, and the chief credit, in the writer's opinion, in both States, is due to E. S. Coe, of Bangor, who has had the foresight for years to limit the cutting of timber on the immense tracts owned by him to 10, 12, or 14 inches on the stump, as the conditions and rate of growth determined. The result is that Spruce, by far the most valuable species, is still dominant and the land is rapidly increasing in value.

Mr. Coe is a very practical and successful business man and his example is extremely convincing to others, especially when he can get from \$3.00 to \$4.00 per M., stumpage, for his Spruce and Fir, limiting the diameter on the stump as he does.

The International Paper Company and the Berlin Mills Co., together controlling more than half a million acres of woodland in New Hampshire and Maine, limit their cut in the same way in some sections, (unfortunately, not in all), save the young growth wherever possible, guard against fire and waste in high stumps and long tops left in the woods, and also market as much of the hardwood as possible. These methods are a big step in advance but they cannot rightfully be classed under the name of working plans.

In a tract which is managed under a working plan, there is known very nearly the exact stand in broad feet, the rate of

growth of the various species, and the amount which may be cut annually without diminishing the working capital. In most cases the timber which is to be cut should be marked, and if the work is done by a jobber, which is usually the case, a contract should be drawn up which shall protect the owner against unnecessary waste and damage.

Large tracts of land in northern New York State are being managed under working plans made by the Division of Forestry, but applications have also been made for small holdings. Major W. A. Wadsworth, of Genesee, N. Y., has several small tracts, belonging to separate farms, which aggregate 3000 acres.

Here the question is one which every farmer with a wood-lot should ask himself, viz: How can I handle this lot so as to get a constant supply of lumber and wood, reproduce the most valuable species, and secure the largest possible money return. The principal timber on these farms at Genesee is Oak, for which there is a fairly good local demand for lumber and firewood.

First must be determined what the capital is in saw logs, cordwood, railroad ties, fence rails, posts, sills, etc. Next, the rate of growth and capacity of reproduction of the different species, also the market, capital invested, taxes, etc.

When the annual yield has been determined, the timber must be cut to the very best advantage, looking both to the future of the lot and the dividend. Sometimes it is found that the proceeds of the annual cut will not pay a fair interest on the money invested; then if the lot is good farm land it should certainly be cleared, and on the other hand, in all parts of the country a great deal of very poor farm land should be under timber.

The writer has just been in Westmore, Vermont, to make a working plan for an exceedingly interesting lot there. It is called the "minister lot," as it was set off by the State for the support of the minister, as was also the case in many other towns.

This lot contains 300 acres, the principal species being Spruce, Fir, Birch and Maple. Here Spruce and Fir are by far the most valuable species, the stumpage being worth from \$3.00 to \$4.00 per M., while the hardwoods will not average over \$1.00 per M. So of course it is best to cut to reproduce Spruce and Fir, and especially Spruce, as we do not want over 30 per cent. of Fir as compared with Spruce, for the paper mills cannot well use more than this.

Such a tract handled in a systematic way will be a material help and a constant source of revenue to the minister and the church.

E. M. GRIFFITH,  
Washington, D. C.

#### Studying the Adirondack Forest.

The collection of the data necessary to a working plan for the tract of the St. Regis Paper Company, situated in Franklin County, New York, occupied a party of student-assistants during July and August of the past summer. These were Messrs. J. V. Doniphan, E. C. Lewis, Charles Jones, Kinsley Twining, C. F. H. Westfeldt, W. P. Haines and Henry Grinnell, who was in charge of the party during my absences.

The 80,000 acres of cut-over lands included in the tract of the company contained much of both silvicultural and economic interest, although the state of affairs is not yet such as to permit of the application of those alluring forms of intensive forest management, which must necessarily remain peculiarly German, until local conditions are such as to render their use financially advisable. The spectacular effect of cutting series, plantations, fire lines and a permanent road system would doubtless lend marked improvement to the appearance of the tract of the Company; they could, with the same degree of certainty, lend proportionate disfigurement to the annual balance sheet; and forestry must prove a source of revenue to private owners or it will meet the fate of any other unsuccessful business enterprise.

To this Company, the question whether systematic forest management should be adopted was in substance the same question that the private owner naturally asks: Given, a certain capital invested in forest lands, and such conditions of market and of transport as to produce a certain net profit per cord of pulp wood and per thousand feet B. M., of hardwood timber: Will the sale of the "sanctioned yield" of these forest lands, or the cords of pulp wood and the feet B. M. of hardwood timber, which can be utilized annually or periodically for ever, yield a fair interest on the capital which the forest lands themselves represent?

Such a query does not incline one to fix a site for a forest nursery. It points rather to valuation surveys and stem analyses—the one to determine the amount of marketable material upon the ground, the other to calculate the rate at which it is produced. These were the problems to be considered first, and it was towards their solution that the work of the student-assistants was directed.

Valuation surveys were run upon the strip method to the amount of one thousand acres. These followed compass courses, the character of the forest being such that more accurate results were obtainable by radiating the surveys from several common centers, than by following the course of streams, ridges and hillsides, as is preferable where wide variation in elevation and topography renders the types of forest growth more distinct.

The stem analyses, the total of which somewhat exceeded 1000, and which were the first complete analyses to be made of the Adirondack hardwoods, included Birch, Hard Maple, Soft Maple, Ash, Cherry and Basswood—a sufficient number of Birch, Hard Maple and Beech from which to compile full tables for rate of growth, and of the other kinds to furnish a fair beginning for further investigation.

Among the more striking points illustrated by the stem analyses was the remarkable longevity and late culmination of the diameter growth, of the Hard Maple. Several specimens analyzed

showed, with an age of over 300 years, a rate of growth in diameter for the last 10 years exceeding that of any previous decade in the life of the tree.

OVERTON W. PRICE.

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### Forest Work on the Pacific Slope.

During the months July to October the Division of Forestry of the Department of Agriculture had a large force of men at work in the States of Washington and California investigating the rate of growth of the Red Fir and Redwood forests.

Gifford Pinchot, Chief of the Division, personally superintended the beginning of the field work on the Red Fir at the logging camp of the St. Paul and Tacoma Lumber Company in the Puyallup River Valley, about twenty miles southeast of Tacoma.

On the first of August the party was divided. Alfred Gaskill, Agent of the Division, who had previously located the field work, took a party to the foot-hills of the eastern slope of the Olympic Mountains, with headquarters at Shelton. Another detachment, under Thomas Sherrard, Agent of the Division, worked in the White River Valley, and later, in the young forests of pure Red Fir which have sprung up on the extensive "burns" in the Nesqually River Valley in the Mt. Rainier Forest Reserve.

The field work included valuable surveys and stem analyses. The diameters of all trees down to 4 inches at breast height were calipered on over 1000 acres, scattered through the regions indicated. About 1000 felled trees were analyzed in detail, in order to determine their contents and rate of growth. Data relating to the silvicultural character of the species was collected along with the survey.

In accordance with an agreement between the Division of Forestry and the Redwood lumber manufacturers, at the close of the work in Washington early in September, Mr. Sherrard took a new party into California, to work on the coast Redwood in Humboldt and Mendocina counties. The object and character of the

work were much the same as in the case of the Red Fir.

Some difficulty was experienced with the material on account of the great age of the Redwood and the wasteful methods of lumbering. It is common for over a hundred feet of top length to be burned in the firing of the cut, which is made to facilitate the working up of such portions of the trees as are merchantable under present conditions of market and transportation.

The field parties lived under canvas and were maintained partly in the lumber camps, and partly with cooks and camp outfits. The field work was largely restricted to localities where lumbering operations were in progress so that the use of pack trains was unnecessary for this summer's study.

The corps of assistants was recruited about equally from the East and West. The names of those holding the appointment of Student-Assistant in the Division of Forestry were: R. T. Fisher, E. J. Moore, E. Koch, Frazier Curtis, E. T. Allen, Wm. F. Wight, H. James 2d, Wm. James, Jr., Wm. C. Hodge, Jr., T. C. Carson, Wm. Maule, Stuart Hotchkiss, F. A. Spragg.

T. H. SHERRARD,  
Washington, D. C.

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### Investigations in North Carolina.

Field work by student-assistants was carried on in North Carolina under the direction of W. Willard Ashe, the members of the party being J. A. Caldwell, Jr., A. E. Ames, A. E. Cahoon and H. M. Curran. The work consisted of stem analyses and valuation surveys on Loblolly Pine. During June and July Mr. Curran also made some investigations in the saw-mills to determine the proportionate grade yield of different sizes of logs of Loblolly Pine.

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A lumberman of Hillsdale, Mich., has purchased the entire timber limits of Morgan county, Ontario, thirty-nine and one-fourth square miles, for its White Pine.

# THE FORESTER.

A MONTHLY MAGAZINE

DEVOTED TO ARBORICULTURE AND FORESTRY, THE CARE AND USE OF FORESTS  
AND FOREST TREES, AND RELATED SUBJECTS.

THE OFFICIAL ORGAN OF

**The American Forestry Association,**

**President, Hon. JAMES WILSON,**

*Secretary of Agriculture.*

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**JOHN KEIM STAUFFER, EDITOR.**

The work of the American Forestry Association as an organization is described so fully in the account of the eighteenth annual meeting that any comment further on that line would be superfluous. But in connection with the general review of the forest movement, historically considered, several items of interest which have come to the desk of the editor suggest themselves in passing.

As every one knows, promoters of ideas at variance with generally accepted views have the dubious satisfaction of realizing a certain public appreciation of their individuality of thought, yet not without the occasional accompaniment of purely gratuitous personalities. The advocates of forestry have survived the ignominy of being termed "unhappy theorists" and being the recipients of similar pleasantries from those whose interest in the subject was that of to-day only; but it remained for one of our lumber contemporaries to reprove an advanced thinker within their own fold by creating a new word of opprobrium for the new "craze."

Now that the leading lumber journals have professed their belief in the necessity of some form of forest preservation, the reproof administered then seems worthy of note. Regarding the matter, the editor of the paper writes:

"This journal was the first of the lumber trade papers to advocate forest protection and to declaim against the wanton destruction of timber, and we were denounced fifteen years ago, by an esteemed Chicago contemporary, as a 'denudatic' on that account. Most of our patrons make their money by cutting down trees and converting them into merchantable forms of wood goods, and you can readily realize that our pleas for forest protection, preservation, renewal, etc., reached a very unsympathetic clientele.

"However, we are glad to know the subject of practical forestry is rapidly gaining importance in public estimation. Fifteen years ago it was considered a mere 'fad' in the South; now it is regarded by all intelligent people as a very serious problem."

The lumberman's view is also the view of the water conservator, as the "Irrigation Age" says briefly, but to the point:

"The question of forest preservation directly interests every irrigable section. Water for irrigation has its source, in almost every case, in forested regions, and if these areas are destroyed by reckless cutting, or firing, the water supply will fail in time of need as surely as the forests are destroyed."



## CURRENT COMMENT.

**Tree Protection for the Suez Canal.**

Favorable progress is being made in planting trees and shrubs along the Suez Canal, to protect it from drifting sand. Reeds have been placed along the water line of the canal proper for a distance of nearly nine miles. Excellent results are expected.

**A Momentous Purchase.**

"The Weyerhaeuser syndicate's purchase of the timberlands of the Northern Pacific Railway still is unsettled, though it is generally believed that it will be consummated. The best posted timbermen hold that the Northern Pacific is making a serious mistake in disposing of its vast heritage of forest wealth." To which comment of a lumber contemporary might be added that the same advice applies equally to the American people.

**A Few Congratulations.**

Greylock mountain, the most famous peak in Massachusetts, located in the Berkshire hills, has been taken by the Metropolitan Park Commission and \$20,000 has been appropriated as an initial expenditure for improving the property, laying out rough walks, drives, etc. Forestry enthusiasts have been making a special effort to get this property beyond the reach of the lumbermen, and at last they have carried their point.—*Lumberman's Review*.

**Amazonian Rubber Trees.**

The enormous increase in the use of rubber for vehicle tires, etc., leads a traveler to remark: "But the sources of supply are still vast, especially in the Amazon district of South America. The difficulty is that trees conveniently located near the banks of the rivers are naturally the first to be worked, and in consequence are becoming exhausted from constant tapping, the milk extracted being weaker each year; hence the shrinkage in such rubber is very

great. In the second place the rivers have all been worked inland for a distance of about three miles from their banks, and, in order to reach the so-called unexplored rubber forests, still further inland, it will require much more time and necessitate more workers while the trees so long tapped are given rest."

**American Lumber in Paris.**

The American lumber to be used in the construction of the Forestry building at the Paris Exposition has been taken abroad by the United States auxiliary cruiser "Prairie," which has been placed at the service of the American Commissioners. The "Prairie" left New York on December 2, with a partial cargo, and completed it at Baltimore and Norfolk. The cruiser sailed December 11, direct for Havre.

**What Substitute For The Forest?**

Science and invention are moving at too swift a pace for nature. It has only been in comparatively recent years, less than a generation, that the use of wood pulp came into general use in the manufacture of paper. But the rapid and increased demand for news paper is exhausting the supplies of wood necessary for its production, and now the inventive genius of man is being taxed to find a substitute for the wood which took the place of rags and other materials in paper manufacture but a few years ago.—*Philadelphia Press*.

**A Pertinent Question.**

Undoubtedly it is true that public interest in the preservation of the forests of Pennsylvania is increasing. Arbor Day alone would seem to indicate that. But in this, as in all others, the *Inquirer* believes in being practical, and therefore it would like to ask a straightforward question.

No man could conscientiously read the newspapers of the State without being



struck with the fact that the timber rights to enormous tracts of land are being acquired weekly, if not daily, in the counties where the finest trees still stand. The prices which the purchasers of such rights are compelled to pay vary, but the indubitable fact that the rights are being acquired remains. In the regions where the purchases are made notice of the transaction is gladly hailed, for the reason that the opening of the tracts to the woodman's ax means the employment of resident labor. For that those regions are not to be censured. Every community wants to have its labor employed.

But now as to the question. So long as one contractor can offset the work of five or ten annual Arbor Days, can "the increase of public interest in forestry in this State" be said to be accomplishing any substantial results? The remedy lies in the acquisition of additional forests by the State itself, the method by which New York is preserving the far-famed Adirondacks.—*Philadelphia Inquirer*.

### The Christmas Tree.

Christmas trees are a product of the forest, though lumbermen pay but little attention to, and know but little about, the market for these little evergreens. A lumberman from the "North Woods" who has for some years taken a hand in supplying the coast markets with the little tree around which centers so much of joy and mirth on Christmas Day, says that Boston is by all odds the most unsatisfactory market for the shipper to be found anywhere on the coast. This is due to the fact that a large portion of the supply of trees is hauled into the city by the farmers located within forty miles of Boston. These trees are sold at from fifteen to fifty cents and are supplied by the markets to their regular customers. New York is the great center of consumption for trees shipped by rail, though Philadelphia is a liberal buyer. In an average season New York calls for about 200 car-loads and the shipper realizes from seventy-five cents to \$2 per tree, less commission.—*Lumberman's Review*.

Volumes have been written and published in the lumber trade papers of the merits, demerits, and good and bad qualities of every tree known to the lumber and timber trade; but if a vote were taken now among all Christian people as to which is the most popular tree and the right of franchise granted to all, from the little tots to the grandsires and dames, to both sexes and to all conditions of wealth, from the cabin dwellers to the owners of palatial mansions, the majority for the Christmas tree, says the *Southern Lumberman*, would astonish the most sanguine office seeker. No other tree bears such wonderful and unexpected fruits; no other tree, in its season, brings so much of joy and happiness.

If anything could excuse the cutting down of young trees, it is the purpose of converting them into Christmas trees; but even this, from a business point of view, is of doubtful justification, for the joys the Christmas tree may bring to the present generation may be the harbinger of sadness to future generations. It might be better for Santa Claus to find a substitute and let the young trees grow where they stand, to be a joy every day in the year and at maturity serve useful purposes. The following utterance from the *Conservative* is unsympathetic, but it is suggestive:

"Mutilation and destruction of the young pine forests growing up in various sections of the republic for the purpose of getting Christmas trees will soon open a new campaign in favor of droughts, blizzards, and infertility. Millions upon millions of the straightest, most symmetrical, and vigorous hemlocks, spruces, pines, and balsams will soon be aboard freight cars and going towards cities to be put into homes for Christmas trees, which shall bear tin bells, dolls, bonbons, glass bulbs, and all sorts of gimcracks for the amusement of children. The generation following will want for lumber which these Christmas trees would have made. The birth of Christ could be celebrated with more common sense than by depriving the human families which will follow us of the material out of which to construct and embellish their homes."

### Sounding the Tocsin.

"In the history of the world there has never been such reckless and criminal wastefulness as the American people have displayed in dealing with their forests. The early settlers, of course, found it necessary to clear the ground in order to carry on the work of farming; but they often proceeded in the most thoughtless and extravagant manner imaginable. Whatever excuse there may have been for the policy which they adopted, there certainly can be none for men of the present generation, who, in their mad rush to make money, have absolutely desolated vast tracts of land, not only cutting down the merchantable timber, but burning and destroying all the younger growth.

"Within twenty-five years Walnut and Cherry, once so abundant, have become exceedingly scarce. The best grades of Poplar are difficult to obtain; in whole districts the Pine is exhausted; Oak is be-

ing used up at an amazing rate. All this would not be so bad if any effort were making to provide for a future supply. Tennessee has millions of acres of mountain lands that can never be cultivated. If they are stripped of their primitive growth, the danger is that they will become as barren as the mountains of Palestine. Why should not our Legislature have the wisdom to see these things and to act with reference to them?

"If some steps are not speedily taken, our descendants of the second generation will be fully entitled to charge us with having robbed them of their natural heritage. Some of the States, notably New York and Pennsylvania, are already showing a disposition to repair past ravages as far as possible. Let all the rest follow the good example they have set. In the meantime let every American count it his duty to set out a tree somewhere every year."—*Nashville (Tenn.) Advocate.*

## Recent Publications.

"The Trees of Vermont," by Anna M. Clark (Bulletin 73, Vermont Agricultural Experiment Station), is a pamphlet of 52 pages describing and figuring seventy known indigenous species and twenty-seven introduced and cultivated species in that State.

The general character and importance of the families represented are briefly given. The species are distinguished by means of keys, short descriptions, and reduced original drawings. The conception of this work is highly commendable, and its execution is sufficiently comprehensive and detailed to give the casual reader or layman student definite knowledge of the trees considered. An admirable departure of the author from the beaten track of botanical writers is the presentation of the subject in intelligent untechnical terms. There is no doubt but that the local need of such treatises is great; for few people have time or opportunity to become familiar with plants through technical books. The illustrations are for the most part well chosen, clear and truthful. If space could have been given, it is believed the characters of the Ashes, some of the Maples, Elms, Oaks, some of the Birches and Hickories would have appeared still more clearly, if the fruits had been illustrated natural size. To many students of Vermont trees, this little treatise may be the

only authority, and the characters of the fruits named are perplexing to beginners. It is believed also that the author should have given uniformly the general distribution of families and species, adding for the latter available critical notes on exact range in Vermont. The local range of some species is excellently defined, and if all could have been treated alike, a great value would have been added to the work. Accurate broad treatises on plant distribution are made possible only through the critical notes of local investigators. Uniformity in the following general statements seems advisable. Under "The Pines" we are told there are nine species in the "eastern United States," while under "The Spruces" we learn there are seven species in "North America." (If by "eastern United States" the author means all states east of the Mississippi, it may be remarked that there are thirteen Pines.) On page 47 we find the "Hickories are quite generally distributed throughout the United States." So far as we know the Hickories are indigenous only east of the Rocky Mountains. Certainly the author did not mean to infer that our western friends are not in the United States. As previously suggested, uniformity of description would increase the general value of the pamphlet very much.





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